

2016 Industrial Hemp Agronomic Report Summary

The Tennessee Department of Agriculture (TDA) issued 64 Industrial Hemp Licenses for the 2016 growing season. Fifteen growers did not plant, leaving 49 growers to plant 225 acres across 75 fields in Tennessee (Figure 1). This was 643 acres less than what was intended. TDA purchased 12,300lbs of industrial hemp seed, which was again distributed later than expected. For the second year in a row, the greatest hindrance in the pilot program was the late arrival of the seeds. Three types of seed were bought from Canada: Canda(3300lbs), Delores(2500lbs) and Joey(3600lbs). Growers also grew seed left over from the previous year: CFX-1, CRS-1, CRS-2 and Finola. According to growers, these seeds had very poor germination rates. Seed was also purchased from Italy: Futura75(2900lbs). One grower is working with Tennessee Crop Improvement Association to produce certified seed. These varieties include: Carmagnola, Carmagnola Selezionata, Elleta Compana, Fibranova and CHG. This grower is also testing the performance of PR13 in Tennessee.

Each grower is required to submit an agronomic report to the Tennessee Department of Agriculture for each crop grown. Not all participants have met this obligation at this time. These reports indicated that 39% of the growers are farmers averaging 10-20 years of experience. Hobbyist farmers/gardeners make up another 39% of the growers. Nineteen percent of the growers had no agricultural experience before entering the pilot program. Most fields were grown for the production of hemp oil (Table. 1). With only 21 fields reporting harvest amount, no significant correlations can be made about planting conditions and yields. Ten fields were reported as harvested, but the growers did not disclose the yields.

The three greatest seed yields were reported by two growers: 400lbs of Elleta Compana, 311lbs of Canda and 300lbs of Carmagnola Selezionata. Both growers had similar growing conditions: outdoors, clay/loam soil, level ground and dry planted at .25-.5" using a seed drill and did not irrigate throughout the growing season. The differences between the two farmer's methods were that one planted in early May and the other in early and mid-June and the use of fertilizer. The three greatest fiber yields reported are 50lbs of Futura75, 20lbs of Canda and 6lbs of Canda. These yields were from 3 different growers with varying growing methods. Eight growing locations harvested flower material. Three different growers produced the three greatest yields are 1000lbs of Canda, 251lbs of Delores and 200lbs Finola. All three fields were planted outdoors in tilled clay/loam soil without any irrigation throughout the growing season. Differences included planting date, planting method, depth and seeding rate. The Finola was planted in late April, while the Delores and Canda were planted in early June. The Finola was broadcast seeded at a rate of 240lbs/acre at less than a .25". The Delores was both drilled and broadcast at less than a .25" (seeding rate was not disclosed). The Canda was drilled at .5-.25 depth at 50lbs/acre. Only one grower reported harvesting the whole plant over three fields. Those yields are 1800lbs of Joey and 1550lbs Delores. This grower planted in mid-June in tilled clay/loam soil. The seed was drilled at a depth .5-.25" at rates between 32.5 and 46.6lbs/acre. Fertilizer was added to one of the Delores fields and the Joey field. Table 2 displays the yield totals for each industrial hemp variety grown. All hemp was harvested by hand.

There are currently no herbicides registered by EPA for use in hemp, so all weed control had to be done by mechanical means. Pests of concern for growers include: insects (cutworms, cabbage worms and aphids), wildlife (deer, horses, turkey and doves) and diseases (Southern Blight, Powdery Mildew, Fusarium sp., and Curvularia leaf spot).

The agronomic reports show that the growers spent approximately \$757/acre grown this year. The three top expenses were labor, equipment and seed. Growers spent the least on interest, irrigation and security (Table 3.). Reported sales are approximately \$6036 which gives \$27/acre. Seven growers reported to have sold their harvested crop. Six sold to a Tennessee Industrial Hemp processor and another made his own hemp oil to sell to friends and online. The largest market appears to be in hemp oil high in cannabinoids. Tennessee hemp growers are working on finding different markets for the product. The greatest success this year was the industrial hemp maze in Chapel Hill, TN. This was a fun and educational event displaying many of the uses for industrial hemp as well as showcasing many fine hemp products produced in and around Tennessee. One local entrepreneur uses hemp seed at his local brewery to make hemp infused spirits. A hydroponic farmer has had success with using hemp leaves in place of other greens. Many growers just enjoy growing the plants for making hemp smoothies at home.

Growers consistently reported frustration with the lack of resources to process any harvested product, although we had six processors sign up this year. Tennessee still lacks a decortication machine to make fiber production a viable option. Multiple graduate students in Tennessee are working on industrial hemp research. One project aims at using fiber for making hempcrete and other is looking for insect control and best management practices. Tennessee's industrial hemp pilot program has grown in 2016 and TDA is looking forward to next year's growing season.

Disclaimer: This information was analyzed using the agronomic reports and is only as accurate as the data collected from the growers

Figure 1.

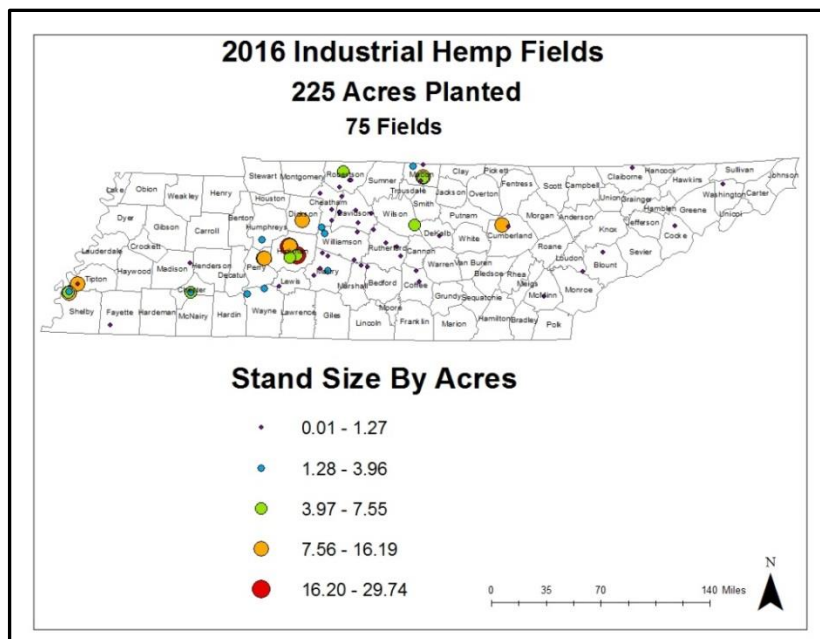


Table 1.

Intended Use	# of Fields
Blank	2
Breeding	3
Fiber	9
Grain	11
Grain/Fiber	2
Oil	24
Oil/Fiber	4
Oil/Fiber/Personal Consumption	1
Other	8
Personal Consumption	5
Unknown	1

Table 2.

Variety	Seed Yields	Fiber Yields	Flower Yields	Whole Plant Yields	Total Yields
Canda	362.25	26.00	1,000.00		1,388.25
Carmagnola					0.00
Carmagnola Selezianata	300.00				300.00
CFX-1					0.00
CRS-1					0.00
CRS-2					0.00
Delores	1.00	1.00	251.39	1,550.00	1,803.39
Elletta Compana	400.00				400.00
Fibranova	100.00		183.00		283.00
Finola			200.00		200.00
Futura75	5.50	50.00	106.60		162.10
Joey			2.20	1,800.00	1,802.20
PR-13					0.00
Grand Total	1,168.75	77.00	1,743.19	3,350.00	6,338.94

Table 3.

Costs	Amount Spent
License Fee	\$ 8,224.00
Sampling Fee	\$ 5,075.00
Inspection Fee	\$ 2,332.55
Seed Cost	\$ 21,908.50
Fertilizer/Additives	\$ 19,274.14
Land	\$ 14,400.00
Equipment	\$ 33,314.00
Labor	\$ 34,660.00
Irrigation	\$ 3,252.00
Security	\$ 5,340.00
Interest	\$ -
Transprtation	\$ 5,510.00
Other	\$ 17,059.50
Total	\$ 170,349.69